CLAIMS

1. A photo-catalyst containing titanium fluoride nitride comprising, $Ti(IV)O_aN_bF_c$ or a compound represented by $MeTi(IV)O_aN_bF_c$ prepared by doping at least one metal Me selected from the group consisting of alkali or alkaline earth metals on $Ti(IV)O_aN_bF_c$, wherein, $_b$ is 0.1 to 1, $_c$ is 0.1 to 1 and $_a$ is a value to maintain Ti(IV) and is decided in relation to $_b$ and $_c$.

2. The photo-catalyst containing titanium fluoride nitride of claim 1 to which at least one promoter selected from the group consisting of Pt, Ni and Pd is loaded.

3. The photo-catalyst containing titanium fluoride nitride of claim 1, wherein $Ti(IV)O_aN_bF_c$ possesses anataze structure and $MeTi(IV)O_aN_bF_c$ possesses perovskite to anataze structure.

4. The photo-catalyst containing titanium fluoride nitride of claim 3 to which at least one promoter selected from the group consisting of Pt, Ni and Pd is loaded.

5. A photo-catalyst for water splitting containing titanium fluoride nitride comprising, $Ti(IV)O_aN_bF_c$ or a compound represented by $MeTi(IV)O_aN_bF_c$ prepared by doping at least one metal Me selected from the from the group consisting of alkali or alkaline earth metals on $Ti(IV)O_aN_bF_c$, wherein, $_b$ is 0.1 to 1, $_c$ is 0.1 to 1 and $_a$ is a value to maintain Ti(IV) and is decided in relation with $_b$ and $_c$.

6. The photo-catalyst for water splitting containing titanium fluoride nitride of claim 5 to which at least one promoter selected from the group consisting of Pt, Ni, Ru and Pd is loaded.

7. The photo-catalyst for water splitting containing titanium fluoride nitride of claim 5, wherein $Ti(IV)O_aN_bF_c$ possesses anataze structure and $MeTi(IV)O_aN_bF_c$ possesses perovskite to anataze structure.

8. The photo-catalyst for water splitting containing titanium fluoride nitride of claim 7 to which at least one promoter selected from the group consisting of Pt, Ni and Pd is loaded.

9. A method for preparation of a photo-catalyst represented by $Ti(IV)O_aN_bF_c$, wherein, a, b and c are same as to claim 1, by baking titanium di-ammonium fluoride halide represented by $(HH_4)_2TiF_dX_{6-d}$, wherein, d is integer of 1-6, which contains at least F and ammonium halide by the ratio of equimolar or by the ratio of slightly excess of ammonium halide at the maximum temperature from 200℃ to 500℃ so as to form a starting material, then said starting material is nitrogenated by thermal synthesis in ammonia atmosphere containing from 0.02% to 10.00% of oxygen, air or water to ammonia by reduced mass to oxygen atom at the maximum temperature from 350℃ to 700℃ for over than 5 hours.

10. A method for preparation of a photo-catalyst represented by $SrTi(IV)O_aN_bF_c$, wherein, a, b and c are same as to claim 1, by baking titanium di-ammonium fluoride halide represented by TiF_xX_{6-X} and/or $(HH_4)_2TiF_dX_{6-d}$, wherein, x and d are integer of 1-6, which contains at least F and at least one compound selected from the group consisting of SrO, SrOH and SrX so as to form a starting material or $SrTiF_6$, then said starting material or $SrTiF_6$ is nitrogenated by thermal synthesis in ammonia atmosphere containing from 0.02% to 10.00% of oxygen, air or water to ammonia by reduced mass to oxygen atom at the maximum temperature from 350℃ to 700℃ for over than 5 hours.